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By Russ Carnahan, The Hill

As our nation continues on the road to recovery we have a real opportunity to make lasting investments in our nation's future when it comes to our built environment. After being approached by constituents in Missouri and industry experts, Rep. Judy Biggert (R-Ill.) and I came together last year to create the bipartisan High-Performance Building Caucus in the House.

Each year, our homes, offices, schools and other buildings consume 70 percent of electricity and 60 percent of all raw materials, and they emit 40 percent of all CO2 emissions in the U.S. Through more efficient building practices and new technologies, we are beginning to address these very real problems in our built environment.

People often think "green" buildings are already high-performing. But, the buildings I am referring to — Green Buildings on Steroids — are stronger, smarter and more efficient buildings. High-performance buildings incorporate the systems approach of energy efficiencies, water savings, use of recycled and recyclable materials, lifecycle analysis and other environmental attributes into designs that are accessible, secure, resilient, and, in many cases, historically preserved.

The built environment has a larger impact on the overall environment than many think. Most people are surprised when I tell them 40 percent of annual U.S. CO2 emissions come from buildings approximately equaling the combined carbon emissions of Japan, France and the United Kingdom. Not only do we have the opportunity to improve the environment for future generations, but we also have the opportunity to create thousands of construction and manufacturing clean-energy jobs right here in the U.S.

By designing and building high-performance buildings, we reduce energy consumption and our carbon footprint. We save both water and raw materials. We save demolition and construction debris from going to landfills. The materials that are used can, in most cases, be used and reused time and again. These positive environmental impacts are magnified when they are combined with the use of renewable energy sources and the building of a smart grid network. In such a network, many of the buildings using their own solar power will be able to offload excess power to the grid. All of this, in turn, helps us to reduce our reliance on foreign oil and to make our country more secure.

It is imperative as Congress crafts energy security and independence legislation that we not only address vehicle and factory emissions, but also encourage high energy-efficiency standards to reflect the urgency of environmental and economic challenges we face. It is ideal as we remain conscious about what is best for our economy and pocketbook that buildings of the future originate from ones already in existence through retrofitting.

Last week, the House passed H. Res. 492 supporting the goals and ideals of High-Performance Buildings Week taking place this week. The resolution provides greater public awareness about the benefits of high-performance buildings and works to increase education about the impact of the built environment.

Congress has also taken action to ensure that the U.S. continues future research, development and deployment of high-performance building technologies by including investments in the American Recovery and Reinvestment Act made when it comes to energy efficiency, weatherization and the retrofitting of existing buildings.

Another good sign in this area is that the 21st Century Green High-Performing Public School Facilities Act, which passed the House, will invest in our schools to boost our economy now and help prepare our children for jobs of the future.

The Act provides over $6 billion in federal funds to upgrade school buildings to make them become more energy efficient and more reliant on renewable sources of energy. Missouri will receive approximately $97.8 million in funding. Green high-performance schools generate long-term savings for schools by reducing energy expenses while reducing pollution by using about 30 percent less water and energy than conventional schools, and emitting almost 40 percent less harmful carbon dioxide.

According to calculations by the Economic Policy Institute, this legislation's construction funding would support as many as 136,000 new jobs — many in areas that will give workers the valuable skills they need to excel in a clean-energy economy.

It is the role of government to work with industry to set high, sustainable standards, and to provide workable incentives to help meet these standards to benefit the health and wellbeing of American families.

Through a new and more sustainable approach to designing, constructing, and operating new buildings and retrofitting and operating older buildings, Congress can address and reduce the numerous and varied environmental, climate, health and economic impacts that result from homes and other buildings.

While high-performance buildings have an enormous positive impact on the environment and global climate change, during these challenging economic times it is important to recognize that high-performance buildings are inherently designed to decrease consumption and thus the overall cost of the building over its lifetime.

In all areas of building — be it residential, commercial or government building — there exists a very real market barrier between initial construction costs versus lifetime maintenance costs. For example, a builder may have the choice between two different air conditioning systems; one is less efficient and cheaper up front, while the more efficient one is costlier but saves money and energy over the long run. Unless the builder is planning on occupying the building, it does not make economic sense to invest in the costlier more efficient system.

This is beginning to change. Within the building community I have seen a great deal of acknowledgement and willingness to address these concerns, but in the end, we as consumers are ultimately responsible for what we buy. As the public begins to hear more and more about the environmental and economic benefits of high-performance buildings, I believe that we will begin to see a real shift in the demand for high-performance buildings.

Through the work of the High-Performance Buildings Caucus, I hope to ensure that our built

environment remains part of the debate in ongoing climate change legislation discussions. The retrofitting of existing buildings or the design and construction of new high-performance green buildings will have enormous impacts on growing our economy, securing our energy independence, reducing global pollution and strengthening our national security.

Carnahan co-founded and co-chairs the Congressional High-Performance Buildings Caucus.